DRAFT

REMEDIAL ACTION PLAN

WALLISVILLE ROAD SITE

HOUSTON, TEXAS

PURPOSE:

The purpose of this plan is to respond to the Environmental Protection Agency's request for a series of remedial measures that will eliminate any potential threat to public health and the environment that may be posed by the migration of residual contaminants from a former pesticide formulation facility.

REMEDIAL ACTION: (See Exhibit A)

The major portion of the property is covered by layers of asphalt, concrete or shell which effectively seal-off any contact betwen rainfall and runoff and residual contaminants in the soil. The character of the surface and immediate subsurface soils and the solubility of the contaminants are such that significant migration of contaminants with groundwater will not occur. The contaminants are not volatile and the same surfaces that prevent surface water contact prevent migration via the air.

This remedial plan provides for the removal of contaminated surface soils from the drainage courses to the north and east of the site and replacement with clean clays. It also provides for capping that portion of the site proper where the original soils are not covered. These measures assure that the site poses no threat to public health or the environment.

It is proposed to remove the contaminated surface soil from the drainways to the north and east of the site and replace it with clean clay. The drainway down the center of the site that is not now covered with concrete, asphalt or shell will be asphalted. The contaminated soil will be disposed of in a secure landfill in accordance with EPA and State regulations.

Specifically, the following actions are proposed:

1. Remove soil from the Houston Belt & Terminal Railway (hereinafter referred to as "Houston Belt") right-of-way consisting of a strip 12 feet wide and averaging 2.5 feet in depth extending from the northeast corner of the property 600 feet south and replace with clean compacted clay. The amount to be removed is approximately 670 cubic yards.
2. Remove soil from the remaining distance of about 500 feet south along the Houston Belt right-of-way consisting of a strip 12 feet wide and averaging 1.5 foot in depth and replace with clean compacted clay. Amount to be removed is approximately 335 cubic yards.
3. Remove soil from the drainway running east and west at the north boundary of the property for a distance of 400 feet west of the northeast corner of the property. The Houston Power and Light Company has an easement in this area. The soil removed will be a 400 foot strip 1.5 foot deep (average) and 8 feet wide which will be replaced with compacted clean clay. The amount to be removed is approximately 175 cubic yards.

4. Emplace a 2" asphalt topping on the unpaved 1,000 foot strip from north end of property on the western boundary of the Southern Pacific Railroad Company (hereinafter referred to as "Southern Pacific") property to the south end of the site. The strip average 15' in width. This would be approximately 1,600 sq. yards of surfacing.

In summary, it is proposed to remove approximately 1,200 cubic yards of soil extending well beyond the critical areas identified in the EPA survey and replace it with clean compacted clays. All removed soil will be disposed of in a secure and an approved landfill. The central drainway will be paved to prevent soil transport by erosion. These actions will remove the potential for and risk to public health or the environment from the residual contaminants at the site. The total cost of this plan is estimated to be $132,450.00. The specific costs are as follows:

1180 yards @ 60.00 per yd. remove, dispose & replace	$ 70,800.
1,667 sq. yds. @ $10.50 2" asphalt surface	17,500.
	$ 88,300.
Contingency, engineering 50%	$ 44,150.
	$132,450.

ENVIRONMENTAL RISK FACTORS:

The principal surface soil type at the Wallisville Road site is the Beaumont clay formation which is overlain locally by clays of low permeability. The significant groundwater sources of the area are in aquifers below the Beaumont clay formation. The low solubility of the contaminants, the low permeability of the surface soils and the impervious

nature of the Beaumont clay formation overlying the usable aquifers preclude any threat to public health or the environment through the migration of the residual contaminants from the site via groundwater movement.

The contaminants are non-volatile and with all contaminated residues covered by uncontaminated material in the form of hard surface or fill, the potential for contaminant migration via the air route is practically non-existent.

This plan calls for the removal or sealing (covering) of contaminanted soil so that it is no longer exposed to surface waters (rainfall runoff). These measures will also preclude inadvertent ingestion of contaminated soil at the site.

BACKGROUND AND SITE DESCRIPTION:

From 1950* to 1972 Olin operated a facility at 7621 Wallisville Road, Houston, at which among other operations various pesticides were formulated, packaged and shipped. When this facility was shutdown in 1972, the property consisting of about 18 acres was sold to Eureka Investment Company of El Campo (hereinafter referred to as "Eureka"). As part of the termination of Olin's operations, the Company cleaned up the plant area. Waste materials were disposed of both off-site and on site. (See Exhibit D).

Thereafter, the buildings were razed, the area graded and the property subdivided. Currently the southwest portion of the property consisting of about 5 acres is occupied by Mustang Tractor and Equipment Company (hereinafter referred to as "Mustang"). About 3.5 acres to the north of Mustang is being

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*In 1950 Olin bought what was then a sulfur plant from Southern Acid and Sulfur Company. Olin started dry formulation of pesticides in 1950 and liquid pesticides in 1955. Exhibit B attached, lists the pesticides handled at this site by Olin. (See also Exhibit C).

leased by Mustang to Seatrain Pacific Services, Inc., (hereinafter referred to as "Seatrain"). The eastern portion of the property consisting of about 9 acres is owned by Southern Pacific which uses it as a parking lot for truck trailers. Exhibit E shows the relative location of the present occupants on the original 18 acres.

Olin submitted information relative to the on-site waste disposal in response to the Eckhardt survey and the Superfund reporting requirements. The EPA made an inspection of this site in December, 1980 as a follow-up of these submissions, and found evidence of pesticides on the Houston Belt right-of-way. Houston Belt hired Rollins Environmental Services, Inc., (hereinafter referred to as "Rollins") as a contractor who removed and disposed of several piles of contaminated material. In February, 1981, EPA conducted a more extensive sampling and analysis. EPA, Region VI, then submitted requests to Olin, Southern Pacific and Houston Belt for submission of "a comprehensive plan for clean up" of the site.

EPA SURVEYS:

Personnel from EPA, Region VI, conducted a preliminary survey in December, 1980 of the Houston Belt right-of-way. This revealed three or four small piles of material about 18 inches high and 3 to 4 feet in diameter containing toxaphene. They were located at the north end of the right-of-way just outside the east boundary of the property. EPA classified the apparent seriousness of the problem in their Site Inspection Report, dated December 19, 1980, as low.

During January, Rollins under contract to Houston Belt removed these piles of materials plus surface soil in the vicinity. The total amount of material removed was contained in seven 55 gallon drums.

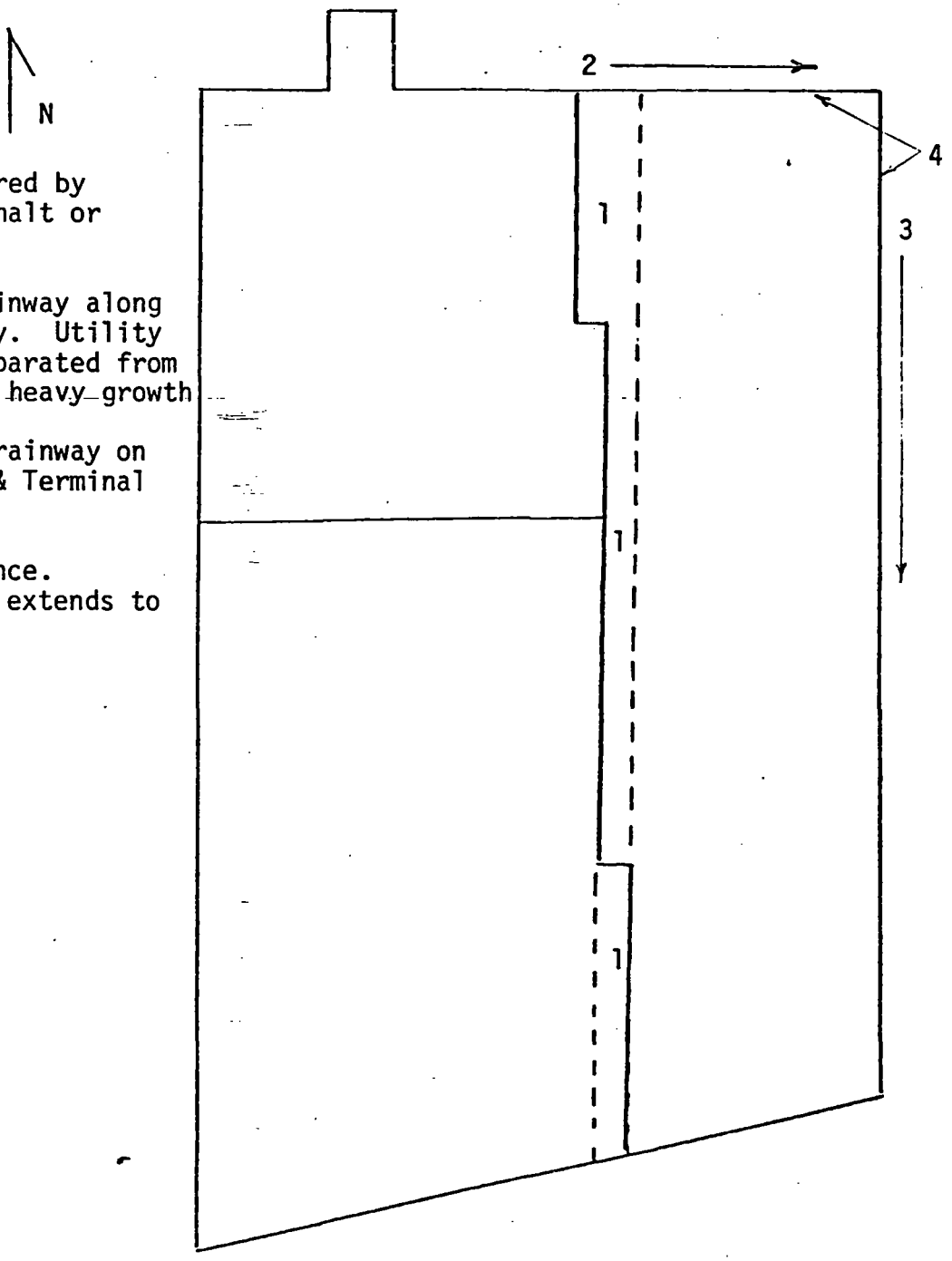
During February, 1981, EPA, Region VI, conducted a subsequent sampling and analysis. In addition to Houston Belt right-of-way, EPA also sampled on property occupied by Southern Pacific, Mustang and Seatrain and also at several adjacent off-site locations.

Three pesticides were detected in a number of these areas. These were, in decreasing order of concentrations generally found, toxaphene, DDT and PCNB. Pesticide contamination also was found in the drainways bordering the north and east boundaries of the property. Sample points together with analytical results obtained by the EPA are shown in Exhibit F.

EXHIBIT A

REMEDIAL ACTION AREAS

WALLISVILLE ROAD SITE



1. Area not covered by concrete, asphalt or shell.

2. East-West drainway along North boundary. Utility right away separated from back yards by heavy growth

3. North-South drainway on Houston Belt & Terminal right-of-way.

4. Chain link fence. Asphalt cover extends to fence.

EXHIBIT B

LIST OF PESTICIDES FORMULATED

BY OLIN AT WALLISVILLE ROAD SITE

BHC

Dieldrin

Aldrin

DDT

DDD

Chlordane

Heptachlor

Toxaphene

Malathion

Parathion

methyl Parathion

Sevin

Endrin

Epichlorohydrin

Terraclor

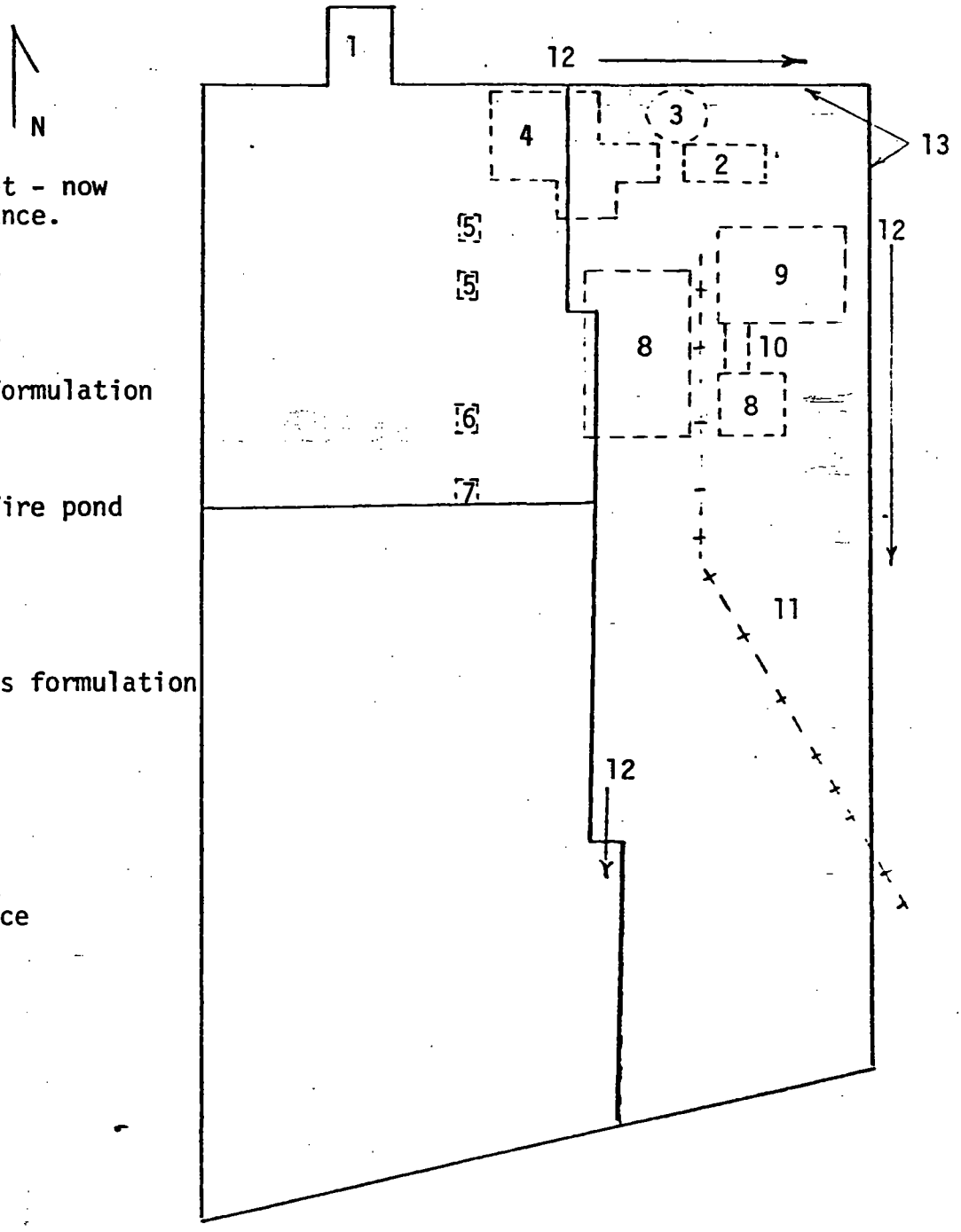
Terrazol

Methoxychlor

EXHIBIT C

OLIN OPERATIONS

WALLISVILLE ROAD SITE



1. Former Olin lot - now Seatrain entrance.
2. Sulfur storage
3. Toxaphene tank
4. Dry products formulation
5. Change houses
6. Pump house & fire pond
7. Office
8. Storage
9. Liquid products formulation
10. Ramp
11. Railroad spur
12. Drainage
13. Chain-link fence

EXHIBIT D

DISPOSAL PITS

WALLISVILLE ROAD SITE

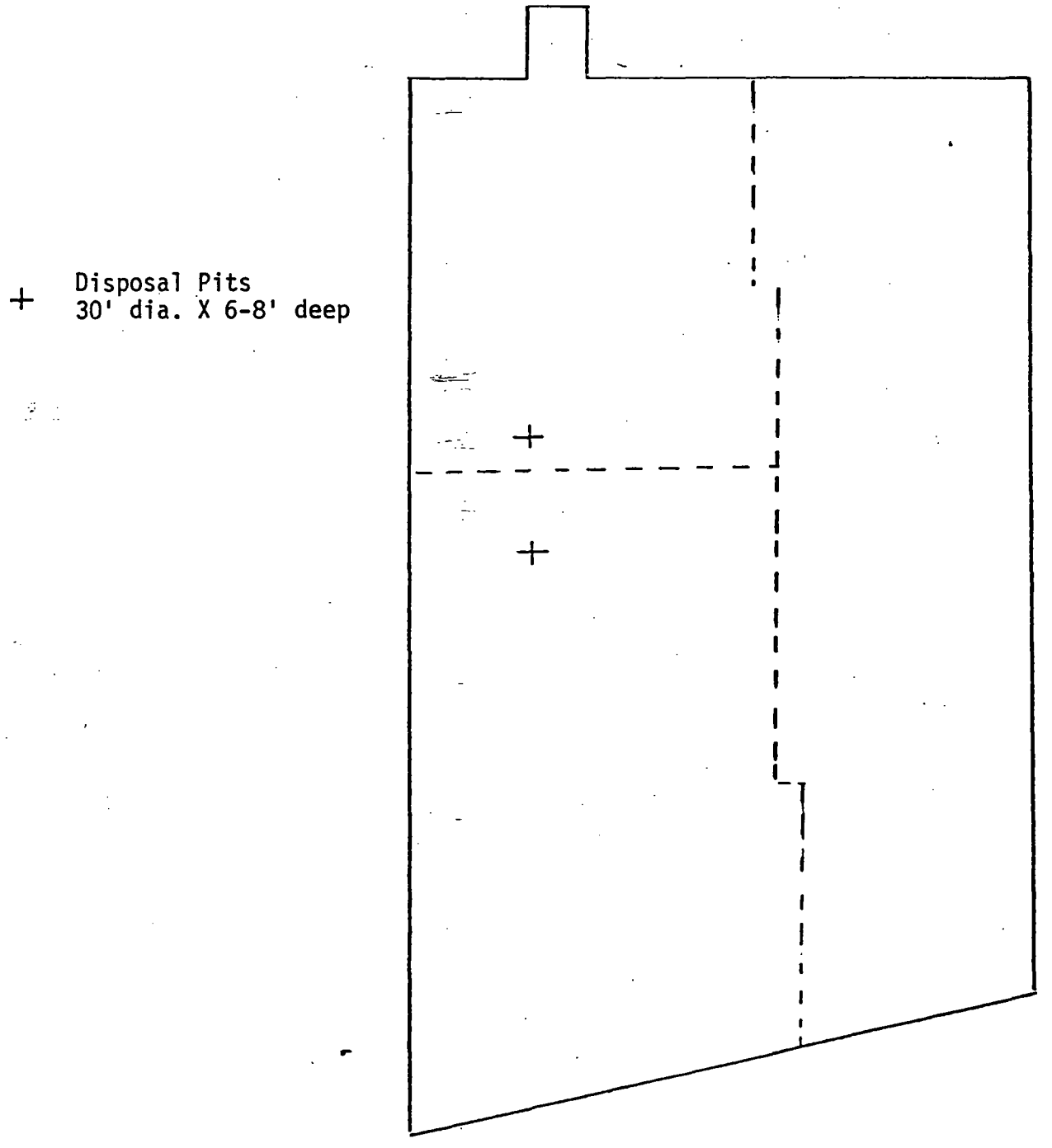
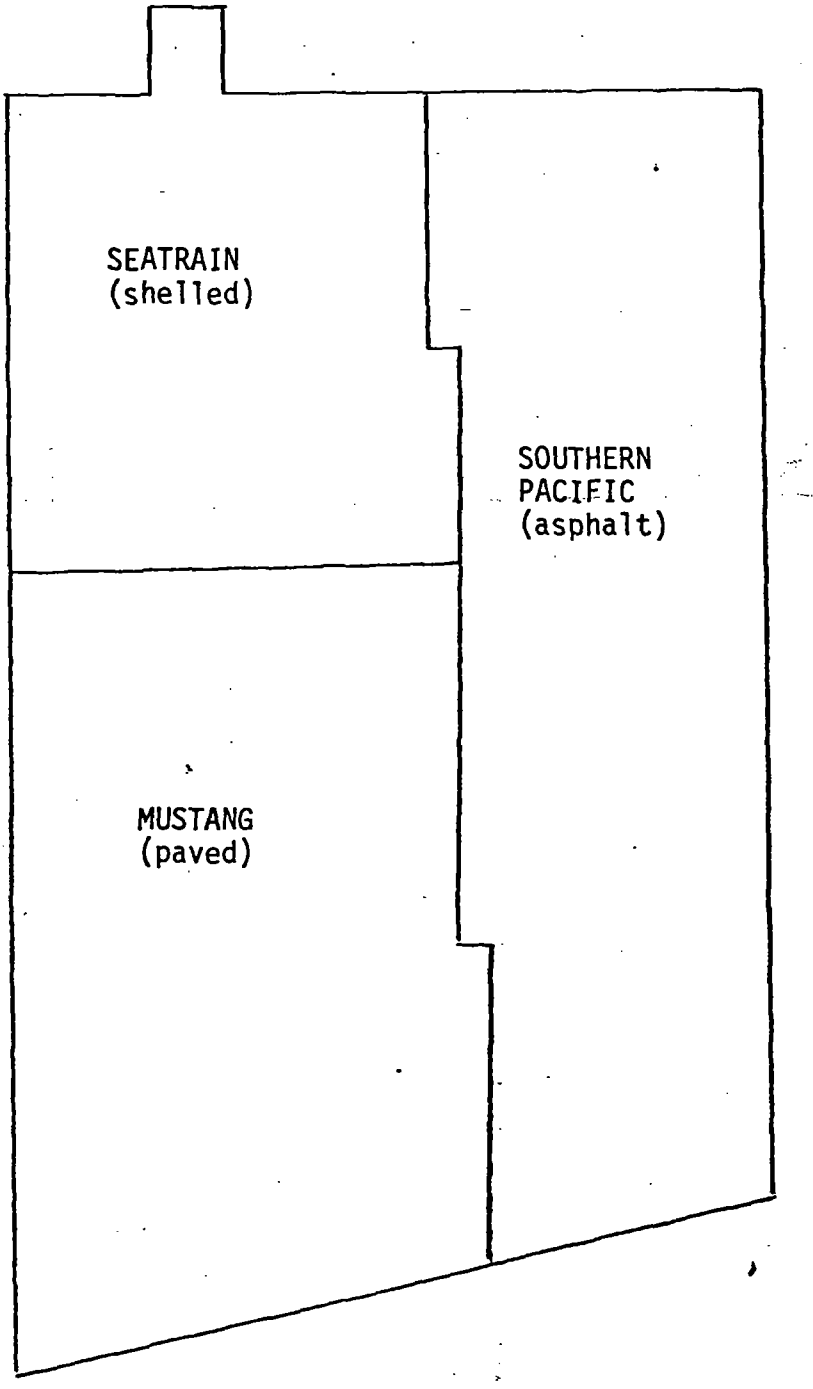


EXHIBIT E

PRESENT OCCUPANTS

WALLISVILLE ROAD SITE



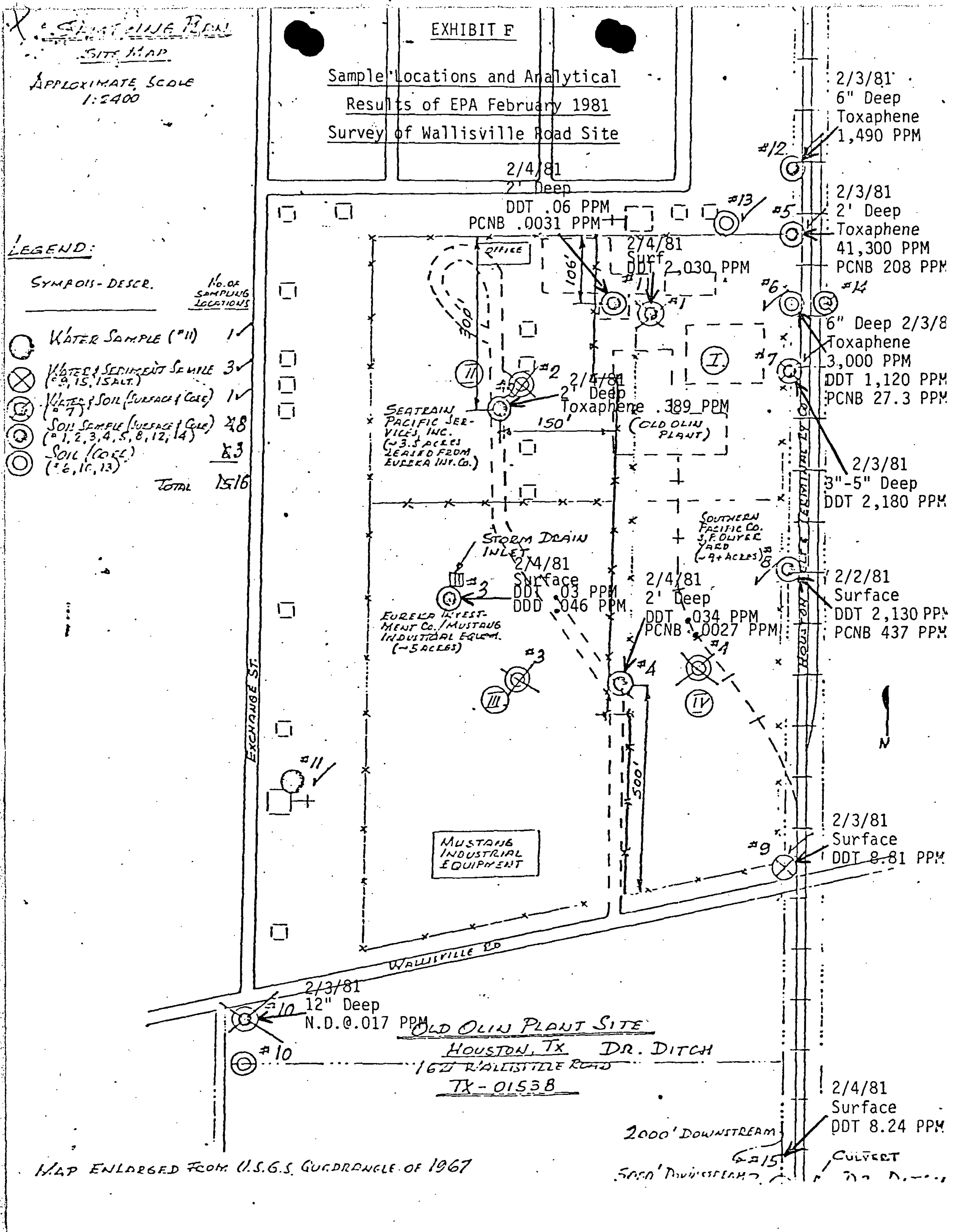
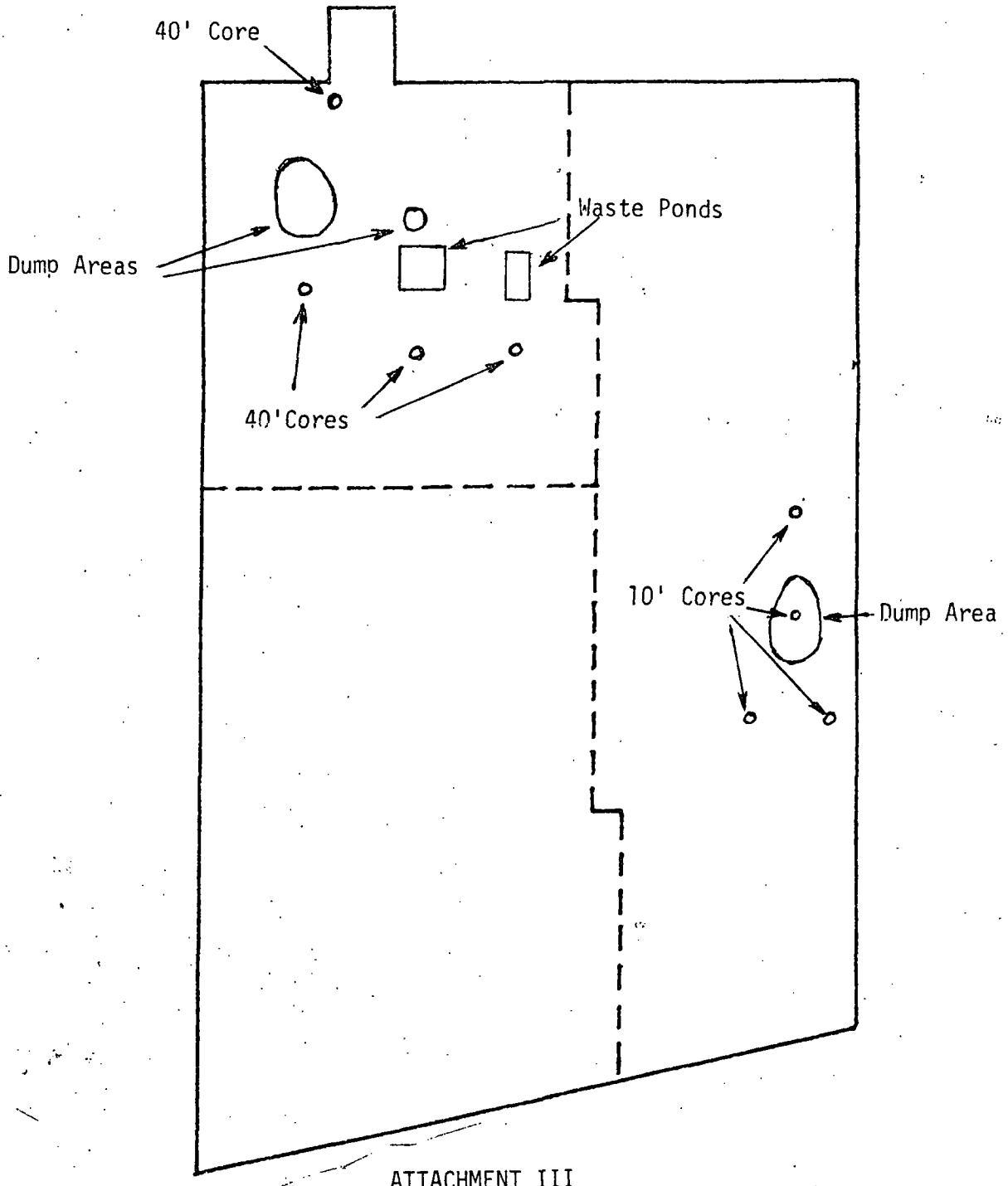


EXHIBIT F
Sample Locations and Analytical Results of EPA February 1981 Survey of Wallisville Road Site
SITE MAP
APPROXIMATE SCALE 1:2400
LEGEND:
SYMBOLS - DESCR.
NO. OF SAMPLING LOCATIONS
WATER SAMPLE (#11) 1
WATER & SEDIMENT SAMPLE (#9, 15, 1 SALT) 3
WATER & SOIL (SURFACE & CORE) (#7) 1
SOIL SAMPLE (SURFACE & CORE) (#1, 2, 3, 4, 5, 8, 12, 14) 8
SOIL (CORE) (#6, 10, 13) 3
TOTAL 16
2/3/81
6" Deep
Toxaphene
1,490 PPM
#12
2/4/81
2' Deep
DDT .06 PPM
PCNB .0031 PPM
#13
#5
2/3/81
2' Deep
Toxaphene
41,300 PPM
PCNB 208 PPM
OFFICE
106'
2/4/81
Surf
DDT 2,030 PPM
#1
#6
#14
6" Deep 2/3/8
Toxaphene
3,000 PPM
DDT 1,120 PPM
PCNB 27.3 PPM
#7
I
300'
II
#2
2/4/81
2' Deep
Toxaphene .389 PPM
SEATRAIN PACIFIC SERVICES, INC. (~3.5 ACRES LEASED FROM EUREKA INV. CO.)
150'
(OLD OLIN PLANT)
2/3/81
3"-5" Deep
DDT 2,180 PPM
SOUTHERN PACIFIC CO. S.P. OLIVER YARD (~9+ ACRES)
STORM DRAIN INLET
2/4/81
Surface
DDT .03 PPM
DDD .046 PPM
#3
2/4/81
2' Deep
DDT .034 PPM
PCNB .0027 PPM
#8
2/2/81
Surface
DDT 2,130 PPM
PCNB 437 PPM
EUREKA INVESTMENT CO./MUSTANG INDUSTRIAL EQUIP. (~5 ACRES)
#3
III
#4
#1
IV
EXCHANGE ST.
N
#11
500'
MUSTANG INDUSTRIAL EQUIPMENT
2/3/81
Surface
DDT 8.81 PPM
#9
WALLISVILLE RD
2/3/81
12" Deep
N.D.@.017 PPM
#10
OLD OLIN PLANT SITE
HOUSTON, TX
DR. DITCH
1621 WALLISVILLE ROAD
TX-01538
#10
2/4/81
Surface
DDT 8.24 PPM
2000' DOWNSTREAM
#15
CULVERT
MAP ENLARGED FROM U.S.G.S. QUADRANGLE OF 1967



ATTACHMENT III
SUBSURFACE CORING PLAN